

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number
WO 2005/015730 A1

(51) International Patent Classification⁷: **H02P 9/00**,
7/635, 6/00

(74) Agent: **CARVAJAL Y URQUIJO, Isabel**; Clarke, Modet
& Co., C/Goya no. 11, E-28001 Madrid (ES).

(21) International Application Number:
PCT/EP2004/007208

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(22) International Filing Date: 1 July 2004 (01.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03380174.7 15 July 2003 (15.07.2003) EP

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (for all designated States except US):
**GAMESA EOLICA, S.A., SOCIEDAD UNIPER-
SONAL** [ES/ES]; Polígono Industrial Los Agustinos Calle
A s/n, E-31013 Pamplona (ES).

(72) Inventors; and

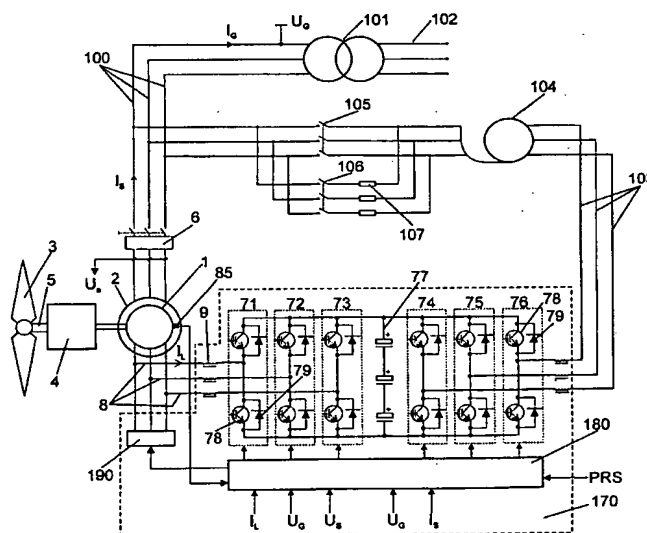
(75) Inventors/Applicants (for US only): **JUANARENA
SARAGÜETA, Javier** [ES/ES]; C/Zabalgaña, 12,
E-31171 Ororbia (ES). **LLORENTE GONZALEZ, José
Ignacio** [ES/ES]; C/Labasture 4A 1A, E-48620 Plencia
(ES).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: CONTROL AND PROTECTION OF A DOUBLY-FED INDUCTION GENERATOR SYSTEM



(57) Abstract: A control system for a double-fed induction generator (DFIG) comprising a rotor (1) having rotor windings and a stator (2) having stator windings connectable to a grid for electric power distribution. The control system comprises a converter (17-0, 171), having a clamping unit comprising at least one passive voltage-dependent resistor element (291, 292, 293, 294) for providing a clamping voltage over the rotor windings when the clamping unit is triggered. The invention also relates to a double-fed induction generator (DIFIG) system and to a method for protecting the converter in a power generation system.